REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following remarks is respectfully requested.

Claims 7-29 remain active in this application, Claims 9, 12, 14 and 16 having been amended, Claims 1-6 canceled and new Claims 17-28 added by the present amendment.

In the outstanding Office Action the specification was objected as including informalities requiring correction; Claims 1-3 were rejected under 35 USC §103(a) as being unpatentable over Chandler et al (US 5,935,069, hereinafter called "Chandler '069") in view of Chandler (US 5,860,931, hereinafter called "Chandler '931") and Hoff et al (US 6,315,730); Claims 4-6 were rejected under 35 USC §103(a) as being unpatentable over Hoff et al, further in view of Chandler;[1] and Claims 7-16 were allowed.

Applicants acknowledge with appreciation allowed Claims 7-16.

In response to the objection to the specification, it is noted that the outstanding Official Action refers to the location of the informalities by reference to paragraph numbers. However, the paragraphs of the specification are not numbered, and the precise location of the informalities to be corrected is not clear. In that regard, the informalities identified as existing in paragraphs [0006], [0048] and [0067] have been located and are corrected herewith. The Examiner is requested to clarify the location of the informalities identified in paragraph [0055] by page and line number, whereupon Applicants will be happy to correct the noted informalities.

In addition, the specification and claims have been amended to correct the mistranslated term "standardize" to "normalize." These changes are believed to be self-evident and are not believed to raise a question of new matter.

[1] The outstanding Official Action does not identify which Chandler reference is being applied., but it is believed that Chandler '069 is applied in the rejection of Claims 4-6.

In light of the several grounds for rejection on the merits, Claims 1-6 have been canceled and replaced by new Claims 17-29 drafted to more clearly recite patentably distinguishing features of the disclosed invention. To that end, new Claims 17 recites an ultrasonic diagnostic apparatus which performs ultrasound transmission/reception based on a scan sequence in which a first scanning is performed with an ultrasound of such a high intensity that the contrast agent is collapsed, after a time at which the contrast agent is saturated in the applied region, and in which a second scanning is performed a plurality of times at time-varying time intervals after the first scanning, with the ultrasound of such a high intensity that the contrast agent is collapsed. Further, as stated in new Claim 17, the apparatus includes a processor which plots a time-varying graph of concentration of the contrast agent based on intensity of the ultrasonic echo under the saturation state of the contrast agent obtained by the first scanning and intensity of the ultrasonic echo at a rising point of the time-varying graph obtained by the second scanning.

In contrast, the applied Chandler '069 patent only discloses an example of transmitting/receiving, in synchronization with an ECG, an ultrasound of such a high intensity that a contrast agent is collapsed, at varying time intervals. Therefore, unlike the ultrasonic diagnostic apparatus recited in Claim 17, Chandler '069 does not perform n first scanning with an ultrasound of such a high intensity that the contrast agent is collapsed, after a time at which the contrast agent is saturated in the applied region, and a second scanning a plurality of times at time-varying time intervals after the first scanning, with the ultrasound of such a high intensity that the contrast agent is collapsed. Further, Chandler '069 does not plot a time-varying graph of concentration of the contrast agent based on intensity of the ultrasonic echo under the saturation state of the contrast agent obtained by the first scanning and intensity of the ultrasonic echo at a rising point of the time-varying graph obtained by the second scanning.

Chandler '931, Hoff et al , and Chandler '069 fail to disclose or obviate the above features recited in Claim 17. Accordingly, it is respectfully submitted that Claim 17 and dependent Claims 18-20 patentably define over the cited prior art.

New Claim 21 recites an ultrasonic diagnostic apparatus in which a scan sequence is performed for a hepatic region, the scan sequence including a first scanning with an ultrasound of such a high intensity that the contrast agent is collapsed, after a time at which the contrast agent is saturated in the applied region, and a second scanning a plurality of times at time-varying time intervals set to be 3 seconds or shorter, after the first scanning, with an ultrasound of such a high intensity that the contrast agent is collapsed. Further, the recited ultrasonic diagnostic apparatus includes a processor which plots a time-varying graph of concentration of the contrast agent based on intensity of the ultrasonic echo under the saturation state of the contrast agent obtained by the first scanning and intensity of the ultrasonic echo at a rising point of the time-varying graph obtained by the second scanning. Similar to Claim 17, Chandler '931, Hoff et al and Chandler '069 fail to disclose or obviate the noted features recited in Claim 21. Accordingly, it is respectfully submitted that Claim 21 and dependent Claim 22 patentably define over the cited prior art.

New Claim 23 recites an ultrasonic diagnostic apparatus which performs a scan sequence in the same manner as recited in Claim 17, and recites a processor which plots a time-varying graph of concentration of the contrast agent, which is approximated linearly, based on intensity of the ultrasonic echo under the saturation state of the contrast agent obtained by the first scanning and intensity of the ultrasonic echo at a rising point of the time-varying graph obtained by the second scanning. Accordingly, for the reasons above noted with respect to Claim 17, it is respectfully submitted that Claim 23 and dependent Claim 25 patentably define over the cited prior art.

New Claim 25 recites an ultrasonic diagnostic apparatus which performs a scan sequence including a first scanning with an ultrasound of such a high intensity that the contrast agent is collapsed, after a time at which the contrast agent is saturated in the applied region, and a second scanning a plurality of times at time-varying time intervals after the first scanning such that a plurality of scanning operations are performed each time, with the ultrasound of such a high intensity that the contrast agent is collapsed. Further, Claim 25 recites a processor which plots a time-varying graph of concentration of the contrast agent based on intensity of the ultrasonic echo under the saturation state of the contrast agent obtained by the first scanning and intensity of the ultrasonic echo at a rising point of the time-varying graph obtained by the second scanning.

In contrast, Chandler '069 only discloses an example of transmitting/receiving, in synchronization with an ECG, an ultrasound of such a high intensity that a contrast agent is collapsed at varying time intervals. Therefore, unlike the ultrasonic diagnostic apparatus recited in Claim 25, Chandler '069 does not perform a first scanning with an ultrasound of such a high intensity that the contrast agent is collapsed, after a time at which the contrast agent is saturated in the applied region, and performing a second scanning a plurality of times at time-varying time intervals after the first scanning such that a plurality of scanning operations are performed each time, with the ultrasound of such a high intensity that the contrast agent is collapsed. Further, Chandler '069 does not plot a time-varying graph of concentration of the contrast agent based on intensity of the ultrasonic echo under the saturation state of the contrast agent obtained by the first scanning and intensity of the ultrasonic echo at a rising point of the time-varying graph obtained by the second scanning. In fact, it is respectfully submitted that the cited art fails to disclose or obviate the above features of Claim 25, and accordingly, it is respectfully submitted that Claim 25 and dependent Claims 26-27 patentably define over the cited art.

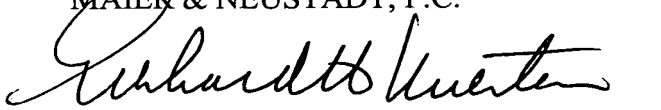
New Claim 28 recites an ultrasonic diagnostic apparatus which performs a scan sequence in the same manner as recited in Claim 17, and recites a processor which plots a time-varying graph of concentration of the contrast agent , which is normalized by the saturation value of the contrast agent in the applied region, based on intensity of the ultrasonic echo under the saturation state of the contrast agent obtained by the first scanning and intensity of the ultrasonic echo at a rising point of the time-varying graph obtained by the second scanning. It is respectfully submitted that the cited art fails to disclose or obviate the above features of Claim 28, and accordingly it is respectfully submitted that Claim 28 patentably defines over the cited art.

Recapitulating, according to the Applicants' invention, it is possible to greatly shorten the scanning time required for plotting a time-varying graph of the concentration of the contrast agent, in comparison with the cited references. In view of this distinction, Applicants believe that there is clear difference in structure between the present invention and the cited references, and that the claimed invention is novel and non-obvious relation to the references.

Consequently, in view of the present amendment and in light of the above discussion, Claims 7-28 are believed to be in condition for allowance, and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

I:\ATTY\EHK\AMEND-RESPONSES\0039\24s\249207US-AM1.DOC